FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

March 31 to April 6, 2013 (Week 14)

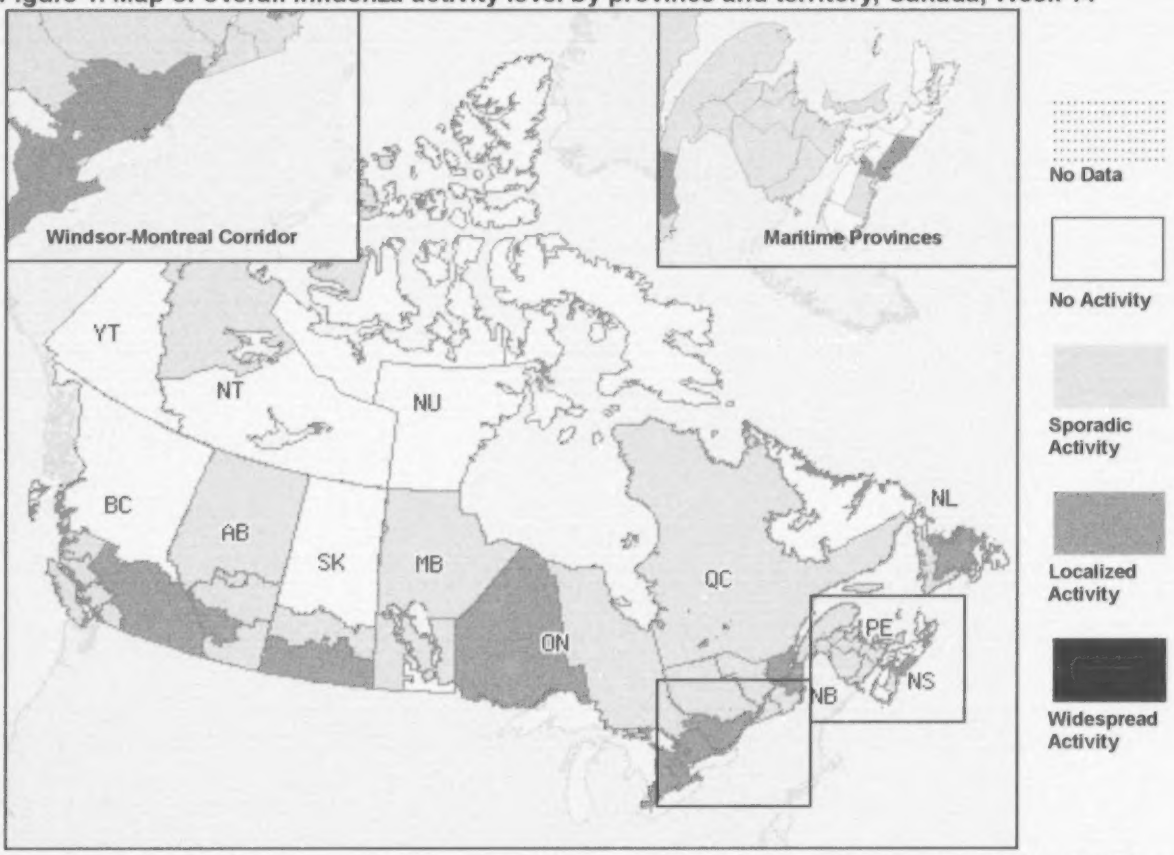
Overall Summary

- Overall influenza activity continued to decline in week 14.
- Laboratory detections of influenza decreased slightly compared to the past 2 weeks. Detections of influenza B also decreased, although influenza B continued to represent 72.7% of positive specimens in week 14.
- The number of regions reporting widespread or localized activity was the same as in the previous week.
- The ILI consultation rate increased but was within the expected range for this time of year.
- Detections of RSV and human metapneumovirus (hMPV) increased while detections of other respiratory viruses were stable or decreasing.

Influenza Activity (geographic spread) and Outbreaks

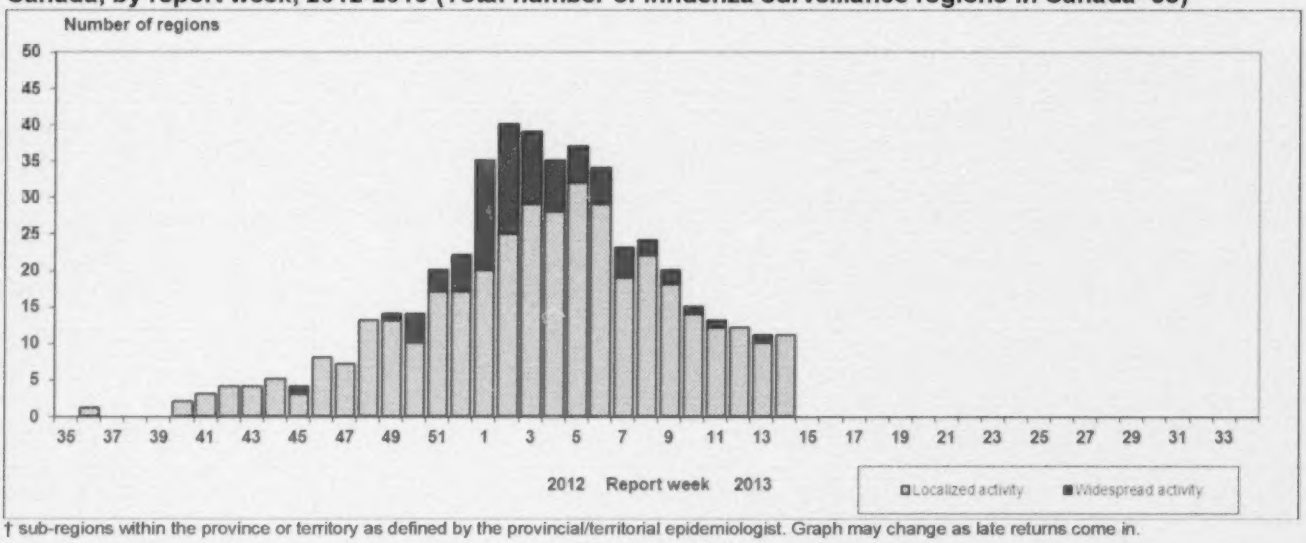
In week 14, no regions reported widespread activity and 11 regions [in BC(1), AB(1), SK(1), ON(5), QC(1), NS (1) and NL(1)] reported localized activity. The number of regions reporting widespread or localized activity was the same as the previous week and continued to follow the overall decline in influenza/ILI activity from the peak in early January (Figures 1 and 2). Eight new influenza outbreaks were reported: seven in long-term-care facilities and one in another facility or community (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 14



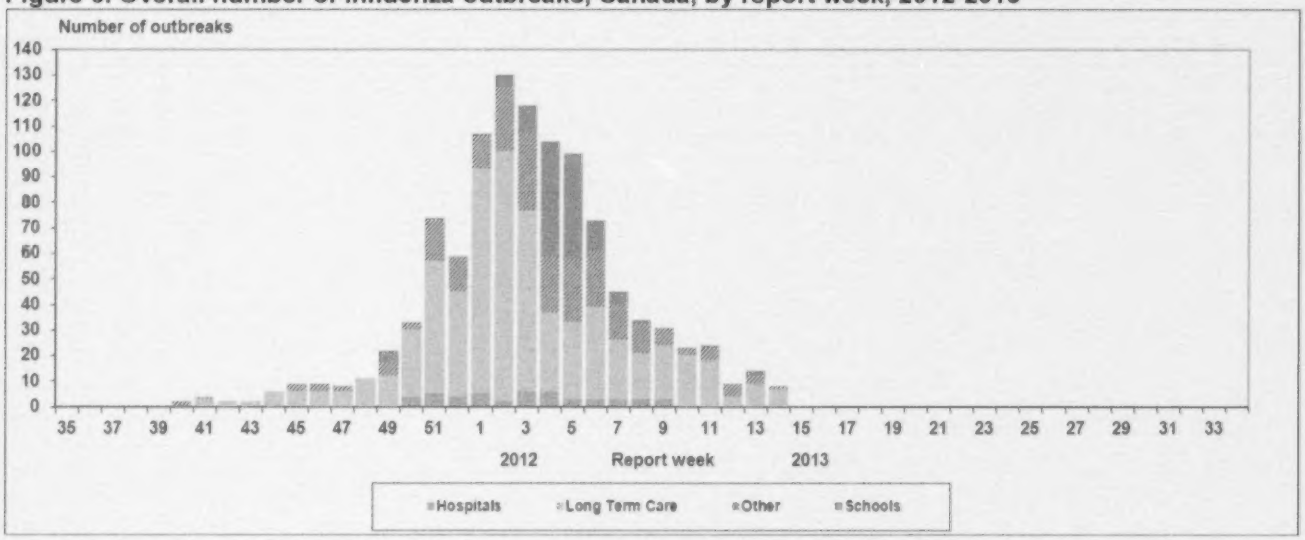
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (Total number of influenza surveillance regions in Canada=58)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2012-2013



Influenza and Other Respiratory Virus Detections

The percentage of positive influenza tests declined slightly to 11.1% in week 14 (Figure 4). Among the influenza viruses detected in week 14 (n=429), 27.3% were positive for influenza A viruses [of which 20.5% were A(H1N1)pdm09, 15.4% were A(H3), and 64.1% were A(unsubtyped)] (Table 1). Detections of influenza B decreased after rising over the past 10 weeks, and influenza B was detected in 72.7% of positive influenza detections in week 14 (Figure 4). Cumulative influenza virus detections by type/subtype to date are as follows: 90.1% influenza A [34.6% A(H3), 4.2% A(H1N1)pdm09 and 61.2% A(unsubtyped)] and 9.9% influenza B (Table 1).

Detailed information on age and type/subtype has been received for 21,821 cases from 26 August 2012 to 23 March 2013 (Table 2). The proportion of cases by age group is as follows: 13.6% <5 years; 9.0% between 5-19 years; 15.5% between 20-44 years; 16.9% between 45-64 years of age; 45.0% ≥65 years.

The percentage of tests positive for RSV decreased slightly to 11.3% in week 14, continuing its decline from a peak in week 08. The percentage of positive tests for hMPV increased sharply to 7.4% while the percentage of positive tests for rhinovirus continued its slow increase since week 01 to 9.1% in week 14. The percentage of positive tests decreased slightly for parainfluenza (3.4%), coronavirus (3.0%) and adenovirus (0.8%) (Figure 5)*.

* For more details, see the weekly Respiratory Virus Detections in Canada Report.

Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013

Reporting provinces	Weekly (March 31 to April 6, 2013)						Cumulative (August 26, 2012 to April 6, 2013)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	13	0	5	4	4	8	1894	0	1448	207	239	331
AB	9	0	4	2	3	64	2307	0	1755	405	147	554
SK	5	0	0	3	2	26	827	0	474	72	281	196
MB	12	0	0	0	12	5	653	0	78	10	565	65
ON	36	0	4	11	21	65	8184	0	3763	329	4092	585
QC	17	0	0	0	17	136	9750	0	546	31	9173	1164
NB	14	0	2	4	8	7	1842	0	770	61	1011	21
NS	6	0	0	0	6	0	367	0	165	6	196	3
PE	3	0	3	0	0	0	109	0	76	3	30	1
NL	2	0	0	0	2	1	713	0	152	0	561	15
Canada	**117**	**0**	**18**	**24**	**75**	**312**	**26646**	**0**	**9227**	**1124**	**16295**	**2935**

*Unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2012-2013*

Age groups	Weekly (March 17 to March 23, 2013)					Cumulative (Aug. 26, 2012 to March 23, 2013)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	12	3	0	9	43	2589	183	843	1563	379
5-19	2	0	0	2	45	1428	64	628	736	538
20-44	19	4	2	13	32	3062	289	1192	1581	319
45-64	16	1	0	15	36	3375	275	1191	1909	315
65+	31	1	4	26	36	9476	102	3583	5791	340
Unknown	1	1	0	0	0	166	20	144	2	0
Total	**81**	**10**	**6**	**65**	**192**	**20096**	**933**	**7581**	**11582**	**1891**

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2012-2013

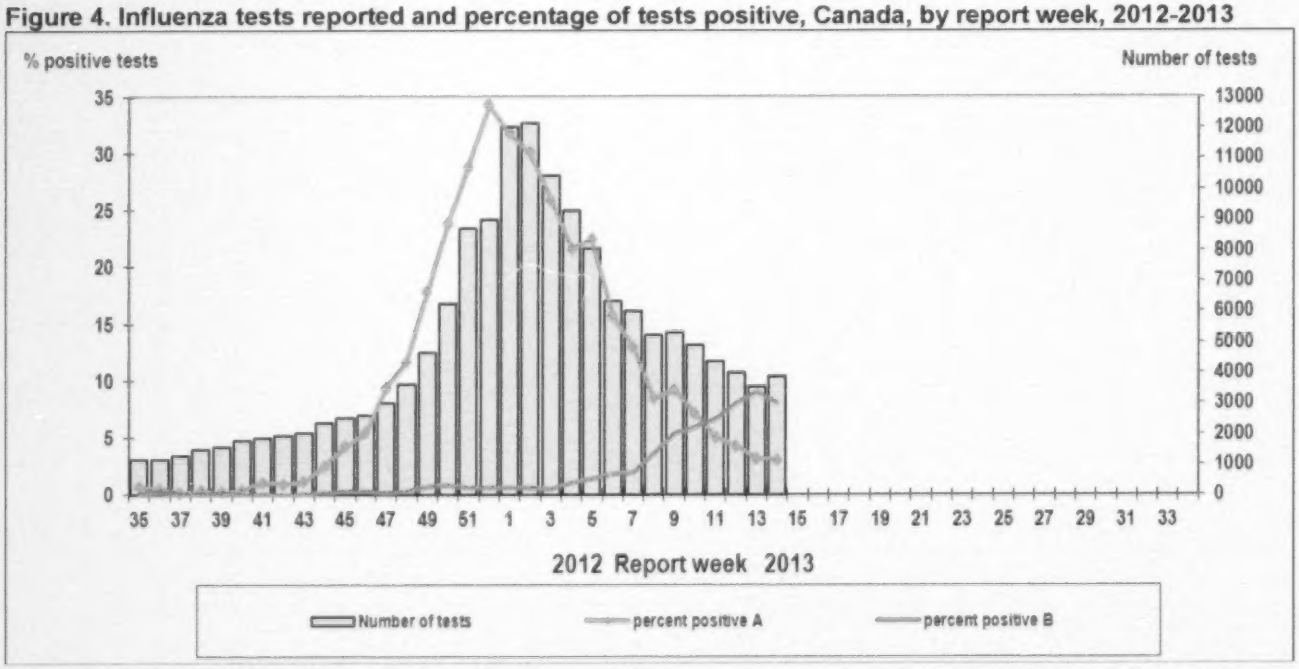
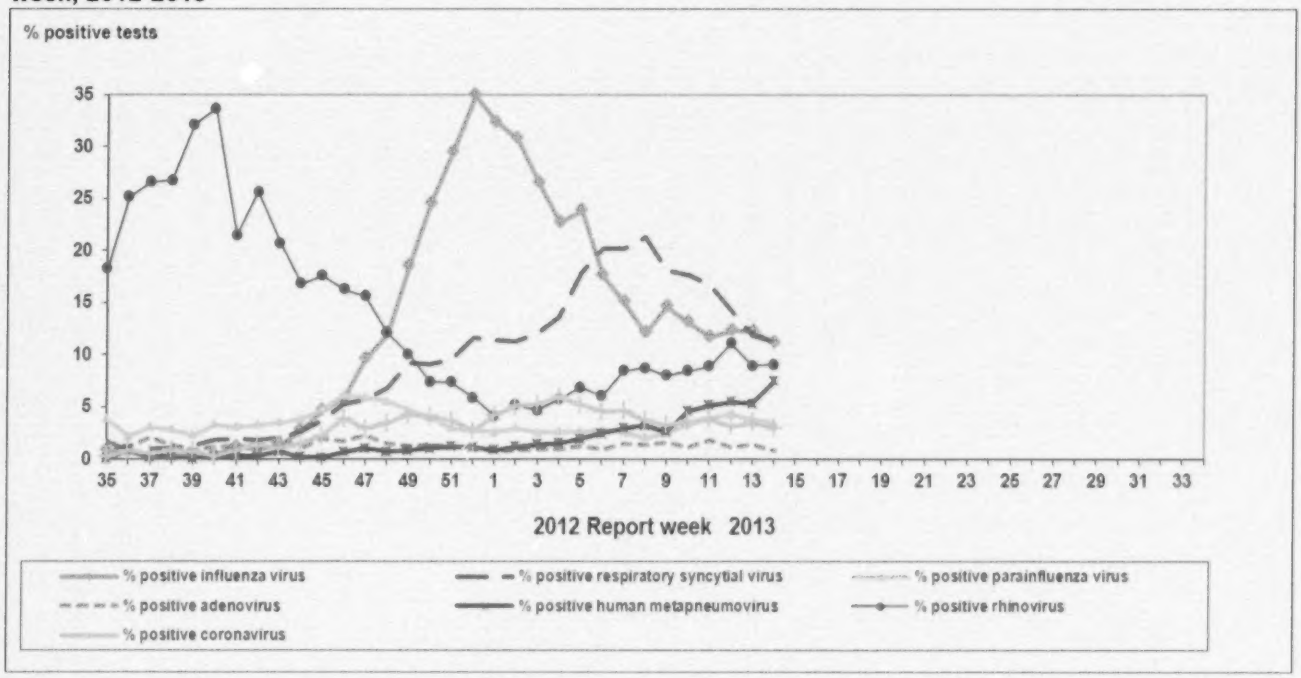


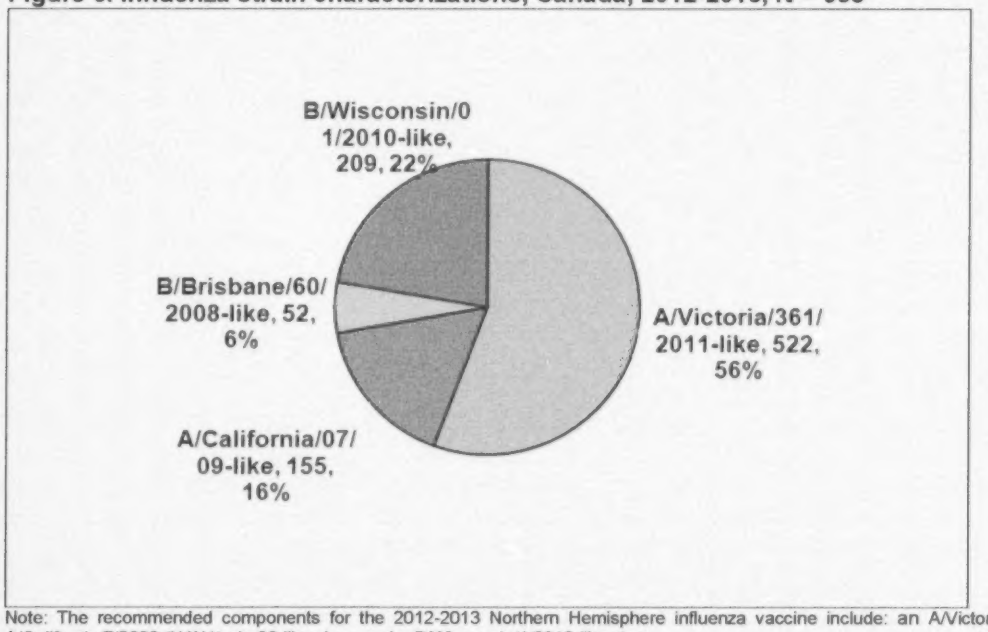
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013



Influenza Strain Characterizations

During the 2012-13 season, the National Microbiology Laboratory (NML) has antigenically characterized 938 influenza viruses. The 522 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011 and the 155 A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, 209 were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and 52 were similar to B/Brisbane/60/2008 (Victoria lineage; component of the 2011-2012 seasonal influenza vaccine) (Figure 6).

Figure 6. Influenza strain characterizations, Canada, 2012-2013, N = 938



Note: The recommended components for the 2012-2013 Northern Hemisphere influenza vaccine include: an A/Victoria/361/2011 (H3N2)-like virus; an A/California/7/2009 (H1N1)pdm09-like virus; and a B/Wisconsin/1/2010-like virus.

Antiviral Resistance

During the 2012-13 season, NML has tested 900 influenza viruses for resistance to oseltamivir, and 902 influenza viruses for resistance to zanamivir. All viruses tested were sensitive to oseltamivir and zanamivir. A total of 1017 influenza A viruses were tested for amantadine resistance and all but one were resistant (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2012-2013

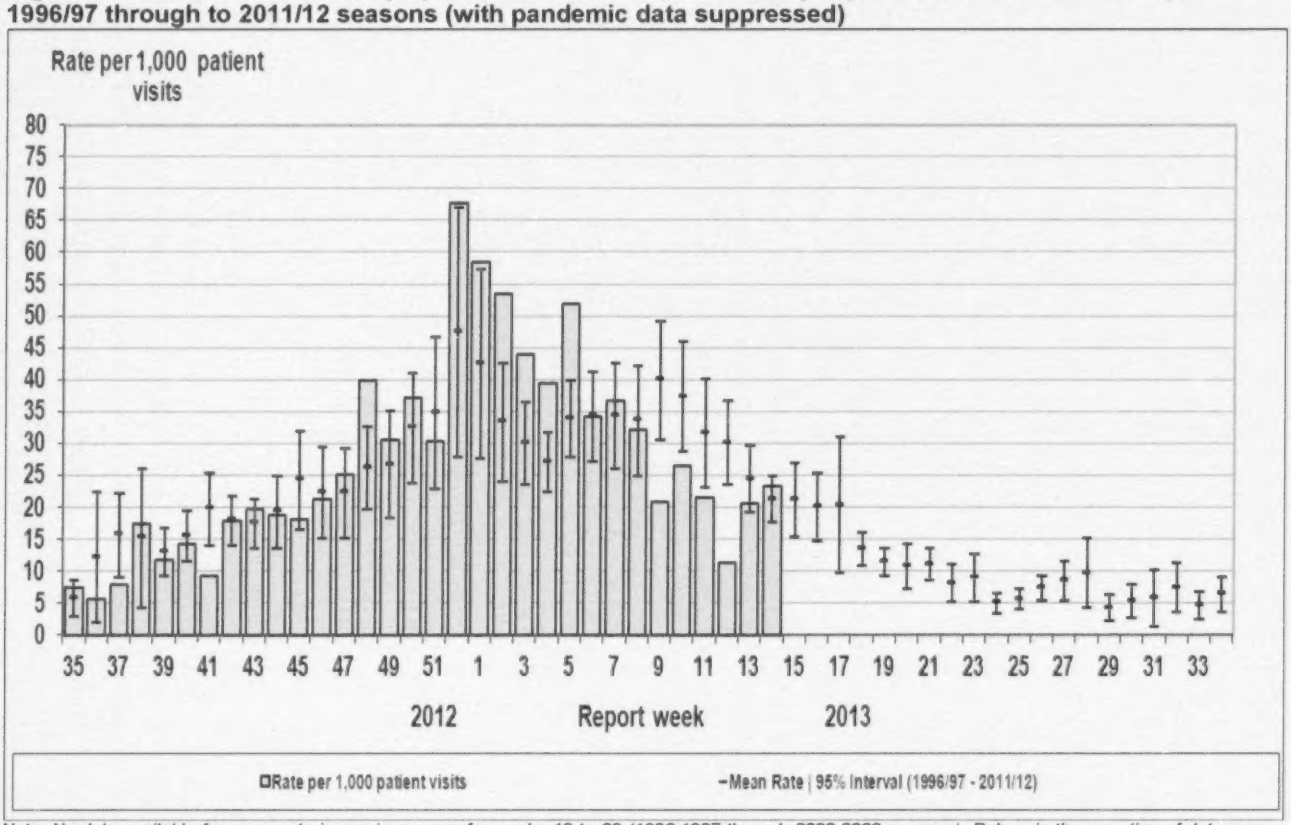
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	508	0	510	0	849	848 (99.9%)
A (H1N1)	151	0	151	0	168	168 (100%)
B	241	0	241	0	NA*	NA*
TOTAL	900	0	902	0	1017	1016 (99.9%)

* NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate increased from 20.5 ILI consultations per 1,000 patient visits in week 13, to 23.4 in week 14 but remains within the expected range (Figure 7). In week 14, the highest consultation rate was observed in children 5 to 19 years of age (35.8/1,000).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In week 14, 12 new laboratory-confirmed influenza-associated paediatric (≤16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network, compared to 25 in week 13. Among the cases reported in week 14, 11 were identified with influenza B and one with A(unsubtyped). For the sixth week in a row, the number of influenza B cases exceeded the number of influenza A cases, a reversal of the pattern seen earlier in the season. The age distribution is as follows: one (8.3%) between 0-5 months, 2 (16.7%) between 6-23 months, 5 (41.7%) 2-4 years of age, and 4 (33.3%) 5-9 years of age. No admissions to intensive care unit (ICU) were reported during week 14.

Since the start of the 2012-13 season, a total of 771 influenza-associated paediatric hospitalizations have been reported by the IMPACT network: 614 (79.6%) with influenza A [of which 118 (19.2%) were A(H3N2), 22 (2.9%) were A(H1N1)pdm09 and the remaining 474 were A(unsubtyped); and 157 (20.4%) with influenza B. The distribution of cases by age group is as follows: 144 (18.7%) <6 months of age; 187 (24.3%) age 6-23 months; 220 (28.5%) age 2-4 years; 157 (20.4%) age 5-9 years; and 63 (8.2%) age 10-16 years. Seventy-four (9.6%) of the 771 cases were admitted to the ICU. No deaths have been reported to date.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Adult Influenza Hospitalizations and Deaths (PCIRN)

In week 14, 12 laboratory-confirmed influenza-associated adult (≥16 years of age) hospitalizations were reported by the PHAC/CIHR Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) network, compared to 10 in week 13. Six of the 12 hospitalizations were cases of influenza A(unsubtyped), five were influenza B and one was untyped. Four cases were ≥65 years of age, six were 45-64 years of age, and two were 20-44 years of age. No ICU admissions or deaths were reported during the current week.

From week 45 to week 14, 1,658 influenza-associated adult hospitalizations were reported by the PCIRN-SOS network: 1,528 (92.2%) with influenza A [of which 286 were A(H3N2), 15 were A(H1N1)pdm09, and 1,227 were A(unsubtyped)]; 76 (4.6%) with influenza B, and the type has not been reported for 54 cases. The age distribution of hospitalizations is as follows: 1,151 (69.4%) were ≥65 years of age, 327 (19.7%) were 45-64 years, 172 (10.4%) were 20-44 years, and 8 (0.5%) were <20 years of age. ICU admission was required for 190 hospitalizations; the majority of which were adults ≥65 years of age (114; 60.0%). Of the ICU admissions, 74 (38.9%) had at least one co-morbidity, three (1.6%) had no co-morbidities, and 113 had no information to date. A total of 104 deaths have been reported: 22 with influenza A(H3N2), 76 with influenza A(unsubtyped), 5 with influenza B, and one untyped. More than 80% of the deaths (89/104) were in adults ≥65 years of age, 12 (11.5%) were adults 45-64 years of age, and 3 (2.9%) were 20-44 years of age. Forty-four (42.3%) deaths occurred in individuals who had at least one co-morbidity. Detailed clinical information on co-morbidities is not known for the remaining cases.

Note: The number of hospitalizations reported through PCIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Provincial/Territorial Influenza Hospitalizations and Deaths (Aggregate Surveillance System)

In week 14, 118 laboratory-confirmed influenza-associated hospitalizations were reported from participating provinces and territories*. The majority of cases were influenza A (78; 66.1%). The highest proportion of hospitalisations were in adults ≥65 years of age (37.3%), followed by adults 45-64 years of age (17.0%). Of the 26 cases with available data, four were admitted to the ICU: three children under 16 years of age, and one adult 45-64 years of age. Four deaths were reported in week 14: two adults aged 45-64 years and two ≥65 years of age. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

To date this season 4,249 influenza-associated hospitalizations have been reported, of which 92.8% have been influenza A. Of those subtyped (48.4%), influenza A(H3) was the predominant influenza strain. The cumulative proportion of hospitalizations with influenza B continues to increase (7.2% in week 14). Age information was available for 4,246 cases, and the age distribution is as follows: 2,316 were ≥65 years of age; 706 were 45-64 years of age; 378 were 20-44 years of age; 40 were 15-19 years of age; 182 were 5-14 years; and 624 were 0-4 years of age. Of the 1,131 cases with available data, there have been 180 hospitalisations for which admission to an ICU was required; the highest proportions have been in adults 45-64 years of age, followed by adults ≥65 years of age (36.1% and 33.9%, respectively). To date, 281 deaths have been reported: 232 were adults ≥65 years of age, 32 were adults 45-64 years; 11 were adults 20-44 years, one was a child 5-14 years of age, and 5 were children 0-4 years of age. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

Note*: The number of new influenza-associated hospitalizations and deaths reported by the Aggregate Surveillance System each week may be overestimated, as it may include retrospective updates to data from Ontario for previous weeks. These data may also include cases reported by the IMPACT and PCIRN networks. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by Saskatchewan. ICU admissions are not reported in Ontario.

International Influenza Updates

WHO: No new influenza surveillance update has been published by WHO since 2 April 2013.
World Health Organization influenza update

United States: During week 14, influenza activity decreased. Four states reported widespread influenza activity, 7 states reported regional influenza activity, and the District of Columbia, Puerto Rico and 14 states reported local activity. The national percentage of outpatient visits for ILI was 1.5%, which is below the national baseline. Two of 10 regions reported ILI at or above region-specific baseline levels but all states reported low or minimal ILI activity in week 14. The percentage of deaths due to pneumonia and influenza was at or above the epidemic threshold between weeks 01 and 12, but has been below the epidemic threshold for the past two weeks, and was 7.2% in week 14. The peak percentage of deaths due to pneumonia and influenza was observed in week 03 at 9.8%, which was higher than observed during the previous four seasons. The proportion of tests positive for influenza viruses declined to 10.9% in week 14. Of the positive influenza detections, 71.1% were influenza B. Since October 1, 2012, the CDC has antigenically characterized 2,098 influenza viruses. Among influenza A(H3N2) viruses, 1,196 (99.7%) were A/Victoria/361/2011-like, and 4 (0.3%) showed reduced titers to A/Victoria/361/2011 antiserum. Among influenza A(H1N1)pdm09 viruses, 206 (98.6%) were A/California/7/2009-like, and 3 (1.4%) showed reduced titers to A/California/7/2009-like antiserum. Among influenza B viruses, 474 (68.8%) were B/Wisconsin/01/2010-like belonging to the Yamagata lineage of viruses; and 215 (31.2%) to the B/Victoria lineage. Two (0.4%) A(H1N1)pdm09 and two (0.1%) A(H3N2) oseltamivir-resistant viruses have been reported to date this season. Among the 12,052 influenza-associated hospitalizations reported to date this season, 80.3% were associated with influenza A of which 96.2% were A(H3N2), and 50% were among adults ≥65 years. A total of 116 influenza-associated paediatric deaths have been reported to date this season, 57 with influenza A, 57 with influenza B and one with both influenza A and B.
Centers for Disease Control and Prevention seasonal influenza report

Europe: In week 14, ILI and acute respiratory illness (ARI) consultation rates declined throughout the region. Most countries reported low intensity of ILI/ARI activity and a decreasing trend. The proportion of influenza B detections has increased from 24% in week 03 to 54% in week 14. Among influenza A viruses in week 14, 57% were A(H3N2) and 43% were A(H1N1)pdm09. Since the beginning of the season, 64% of detections from sentinel and non-sentinel sources were influenza A [68% A(H1N1)pdm09 and 32% A(H3N2)] and 36% were influenza B. Among influenza B viruses, 92% belonged to the Yamagata lineage and 8% to the Victoria lineage. In week 14, the number of countries reporting a predominance of influenza A circulation continued to decrease, and now includes only Greece, Ireland, the United Kingdom, Belgium, Estonia and Finland. Among the 593 A(H1N1)pdm09 viruses tested for resistance to oseltamivir from 12 countries, 10 were found to contain the H275Y mutation: three were specimens from hospitalized and outpatients not exposed to oseltamivir, while the other seven viruses were detected in hospitalized immunocompromised patients receiving oseltamivir treatment. The number of hospitalizations for severe acute respiratory illness (SARI) are declining, in keeping with ILI/ARI consultation rates.
EuroFlu weekly electronic bulletin

Emerging Respiratory Pathogens

Human Avian Influenza

Influenza A(H7N9): Between April 6 and April 11, the WHO reported an additional 22 human cases of influenza A(H7N9) in eastern China, including two adults 20-44 years of age, six adults 45-64 years of age, and 14 adults ≥65 years of age. The most recent date of illness onset is 4 April 2013. Of these cases, two were fatal, 14 were hospitalized, and two had mild illness. The health status of four cases was not reported. Two earlier cases were also reported to have died. Since March 2013, a total of 38 cases of influenza A(H7N9) have been reported, with 10 deaths, 19 cases of severe illness, and nine cases of mild illness. More than 760 close contacts of confirmed cases are being closely monitored. Some of the confirmed cases had contact with animals or with an animal environment. Investigations into the source and route of transmission are still in progress, but there has been no evidence of ongoing person-to-person spread. WHO is in contact with national authorities and is following the event closely.
PHAC – H7N9 avian influenza
WHO Influenza at the human-animal interface
WHO Disease Outbreak News
WHO Frequently Asked Questions on human infection with influenza A(H7N9)

Human Swine Influenza

No new human cases of infection with swine influenza viruses or variants were reported in week 14.
Centers for Disease Control and Prevention seasonal influenza report

Novel Coronavirus (hCoV-EMC)

No new cases of novel coronavirus (nCoV) have been reported by WHO since 26 March 2013. Since April 2012, 17 laboratory-confirmed cases of nCoV have been identified, including 11 deaths.

PHAC – Coronavirus

WHO – Coronavirus infections

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2012-2013 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/Influenza outbreaks for the 2012-2013 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Influenza Activity Levels Definition for the 2012-2013 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region†**

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region†**

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles.